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PLANNING A SUBSISTENCE HOMESTEAD

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MANY FAMILIES with small incomes can lower their living costs by living on a small piece of land and growing their own food, and at the same time enjoy a greater quantity and variety of fresh and canned vegetables and fruit. Gardening and poultry raising on a small piece of land is about all an employed man and his family can care for by hand. About 1 acre of good land is enough for such purposes.

But if the family wants to keep a cow and plans to buy the necessary winter feed, 2 acres of good pasture land, in addition, should be enough, and the extra work will not be excessive.

Men employed only part time or short hours who have large families and small incomes may find it economical to keep a milk cow, or milk goats, and some pigs, and raise the necessary feed in addition to having a garden and keeping poultry. This plan means the use of horse or mechanical power and should be tried only after experience and careful consideration.

Some families are so placed that their best plan involves obtaining a fairly large acreage of cheap land for general farming. In many areas this cheap land is extremely poor and has failed to yield a reasonable living under any kind of farming. For this reason extreme care must be exercised in selecting a so-called cheap farm.

PLANNING A SUBSISTENCE HOMESTEAD

By WALTER W. WILCOX, *junior agricultural economist, Division of Farm Management and Costs, Bureau of Agricultural Economics*¹

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RENEWAL OF INTEREST

GROWING FOOD for family-living purposes in connection with enough outside work to provide the family with the cash for necessary farm and family expenses is a combination that many families now want to develop. Recent hard times and still more recent Governmental policies have renewed an intensified interest in this possible combination. This kind of farming has often been called subsistence farming and a farm of this kind a subsistence homestead.

This part-time farming has certain problems of its own that are somewhat different from the usual farming problems. The family has to think of the quantity and variety of products it needs rather than of what the markets demand. Those who are inexperienced often overestimate the savings made possible by this way of living, and they often underestimate the costs in the way of the labor and cash necessary in such part-time farming.

In this kind of farming special attention is given to obtaining just the right area and kind of land; for when much of the work is done by hand, a heavy soil that is hard to work is a great disadvantage. With no power available, and with only a minimum of livestock, keeping unused land free from weeds is a burden.

¹ Members of the staff of the Division of Subsistence Homesteads, U.S. Department of the Interior, assisted in preparing this publication including its illustrations. W. R. Beattie, senior horticulturist, Bureau of Plant Industry, worked out the detailed plans for the garden and fruit production on the small acreages, and Medora M. Ward, assistant economist, Economics Division, Bureau of Home Economics, supplied the section regarding the winter vegetable and fruit supply for a family of five.

This combination of farming and wage work off the farm, now usually called subsistence farming, is particularly attractive to those families with several children who find it difficult to provide suitable housing and plenty of fresh fruits and vegetables from their small incomes. It is much less attractive if wages from work off the farm are not enough to meet the necessary cash expenses of the farm and the family living. Inexperienced people will find severe competition if they try to raise farm products for sale.

Many people now in town who lived on farms in their childhood inquire about subsistence or "self-sufficing" farming on 20 to 100 acres or more. Many farms that are apparently suitable for such a purpose are now for sale at relatively low prices, but many serious problems are involved in this kind of farming. Only a few of those problems are discussed here as most of them are covered in other Farmers' Bulletins, a brief list of which is given at the end of this bulletin.

This bulletin deals chiefly with the economic problems that will be met by those people who are planning to combine part-time farming and wage earning.

SELECTING LAND NEAR CITIES

Several problems are involved in selecting a small piece of land near a city in which jobs may be found. The first is the difference in the prices of land with reference to location. The price of land near a city is often based as much on residential value as on productive capacity. Two tracts of land equally valuable from the point of view of building sites may not be equally valuable for use in growing fruits and vegetables. A part-time farmer should have good, productive land. The importance of the soil cannot be over-emphasized. A moderately level, fertile, well-drained piece of land that is free from stones and can be readily worked may easily be worth twice as much as another nearby tract of the same size. Sandy loam soils usually can be worked earlier in the spring than the stiff clay loams, but crops on the clay loams frequently withstand dry weather better than those on lighter soils. By draining, irrigating, manuring, and the right kind of cultivating any reasonably good soil can be made suitable for the intensive growing of vegetables.

Distance to place of employment and transportation facilities are other important considerations. Studies show that most part-time farmers do not want to drive more than 10 miles to work. Other things being equal, a location near several places where jobs might be found has many advantages over a location where a family would be rather cut off if the one industrial plant closed down.

If city water is not available at a reasonable cost, a good supply of pure well or spring water is necessary. A small tract of land that is otherwise suitable for a subsistence homestead may not have a supply of pure water available because of surface or underground drainage. Public health authorities in the nearby city will test the water for purity or furnish the address of some State official who will do it. Although wells may be drilled at a reasonable cost in most localities, there is always some chance that a supply of good water will not be found near the surface.

In those sections of the United States where the rainfall is scant, it may be necessary to irrigate the crops during at least a part of the growing season. Under such conditions even more attention should be given to the water supply.

The location of the land with regard to community improvements, like roads, schools, churches, and electric-power lines, should also be considered. A part of the cost of some improvements, like paving and sidewalks, is often assessed against the adjoining property. This should be considered when deciding between two tracts of land, if only one has city improvements. The amount of the tax levy for recent years and the probable future taxes should be investigated.

In many cases a small tract of land with a house and outbuildings can be bought more cheaply than it would be possible to buy unimproved land and put up the buildings. But if the chief object is to have a place to raise a supply of food for the family, the quality of the soil should have greater weight than the state of repair of the buildings. In the New England and other eastern States uncleared land on the outskirts of cities is sometimes available at a very low price. Many city people have bought small tracts for home sites, but such land requires a great deal of labor to make it productive. Moreover, care must be taken on uncleared areas to keep rodents and other small-animal pests of agriculture sufficiently under control to insure a full crop.

Small acreages near cities are available for rent. These can usually be rented with the payment of rent on a monthly basis. A year's experience in renting such a place will not only make it possible to decide for oneself on the advantages and disadvantages of living on a subsistence homestead, but it will furnish an excellent basis of judgment as to the advantages and disadvantages of the particular property as compared with some other one located nearby.

If the purchaser hopes to increase his farming later, in order to have produce for sale, he should keep the possibilities of such increase in mind when buying.

VEGETABLE, POULTRY, AND FRUIT PRODUCTION

Enough vegetables and small fruits can be raised on one half to three quarters of an acre of good land to furnish a family of five with all they want during the summer and with plenty for canned, stored, and dried products for the winter. These small fruits and vegetables, together with a small poultry flock and a few fruit trees, are all that can be cared for properly by the ordinary family without a horse or garden tractor, if the man is chiefly employed in some other job during the growing season.

LAY-OUT FOR A SMALL ACREAGE

Figures 1 and 2 give suggested plans for using approximately 1 acre of land. Figure 1 shows a plan that is suitable in the North or Northern States as far west as there is sufficient rainfall. Figure 2 shows a plan adapted to the South or the old Cotton Belt. It is to be emphasized that these plans are merely suggestive. The topography and the quality of land vary so greatly in many localities that the plan for using any plot of land must be adapted to its specific conditions.

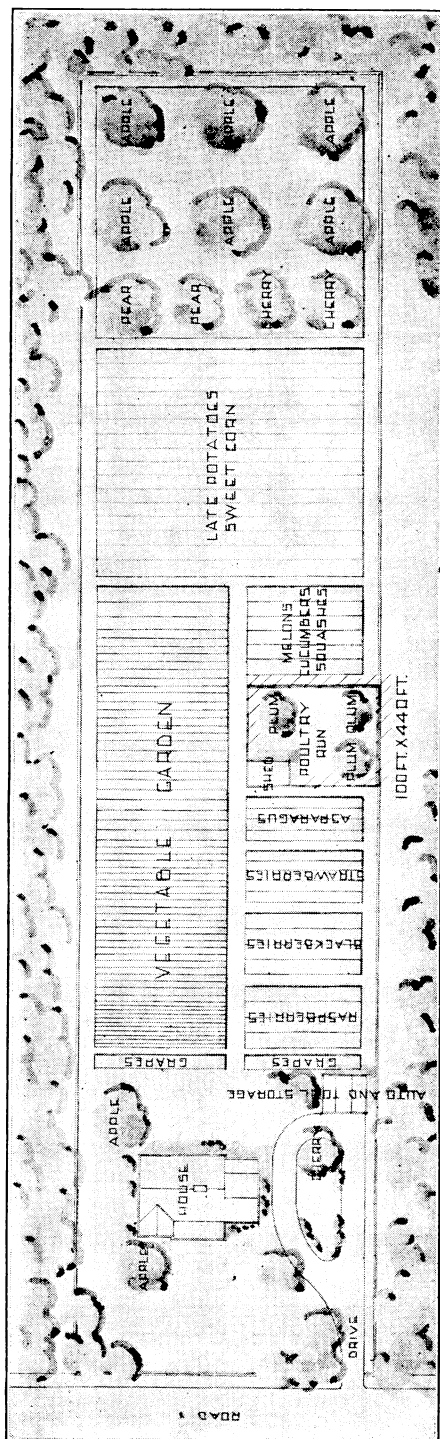


FIGURE 1.—A SUGGESTED PLAN FOR A 1-ACRE SUBSISTENCE HOMESTEAD IN THE NORTH.

Beauty and utility are combined in the lay-out of this tract containing 1.01 acres. In the area north of the Mason-Dixon line and east of the one hundredth meridian this plan provides for a year's supply of vegetables, small fruits, poultry products, early and late potatoes, and most of the necessary tree fruits for a family of five. This is all that a man who is employed elsewhere during the growing season can care for properly by hand with the help of his family.

A few important points are to be kept in mind in planning the home and grounds, regardless of locality. Although the chief object in securing a small acreage may be economy—growing food for the family and lowering the housing costs—beauty or sightliness should not be overlooked when planning the buildings, garden, and tree plantings. Success in changing from a city to a country type of living will depend more on the wife—on her ability and willingness to adapt herself to the new conditions and responsibilities—than on any other member of the family. Careful arrangement of the buildings and plantings will do much to make country living attractive to the family.

Economy of effort is important. The use of the land should be planned so that the work can be done with the least possible effort. This means that the vegetables and berries that need the most attention should be closest to the house. As more trips are made to the garden for small vegetables and berries than for late potatoes, sweet corn, and orchard fruit, the small vegetables and

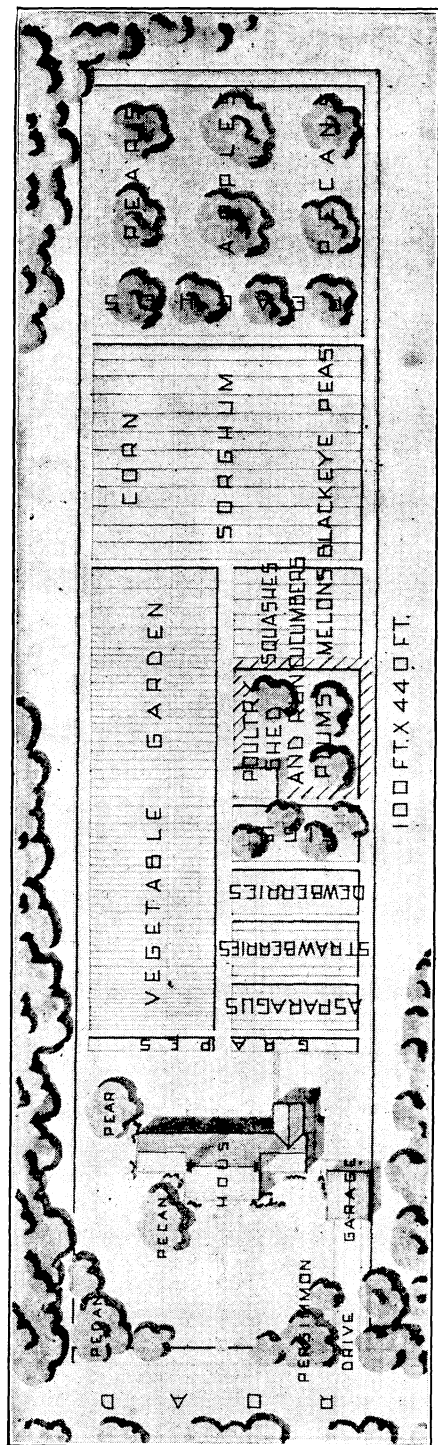


FIGURE 2.—A SUGGESTED PLAN FOR A 1-ACRE SUBSISTENCE HOMESTEAD IN THE SOUTH.

This lay-out differs from figure 1 in that it is adapted to that region of the United States often called the old Cotton Belt.

berries should be located nearer the kitchen. If the condition of the land permits, all the cultivated part should be located in one tract to facilitate the preparation of the seed beds and the cultivation. Since poultry requires attention at least twice a day, the chickens should be located reasonably near the house. Trees require the least care and, with the exception of those used for shade, should be located farthest from the house.

QUANTITY AND VARIETY OF GARDEN VEGETABLES AND SMALL FRUITS

Detailed plans for vegetable gardens in the North and South respectively are given in table 1. The amount of each vegetable crop to plant and the standard variety for the general region are suggested, as a guide for those who are not experienced. There may be other equally good or better varieties for any given locality or soil type within the region. The State agricultural experiment station and extension service or reliable garden-seed companies may be able to recommend varieties that are better adapted to specific local conditions.

To be most useful, the vegetable garden must provide a succession of crops throughout the growing season, and a supply for canning and storage for use during the other months. Varieties should be selected with these requirements in

mind. With success in growing, the quantity of the various vegetables indicated in the tables will supply an adequate and balanced diet for the average family of five throughout the entire year.

Strawberries do well in most localities and bear fruit the second year after the plants are set out. Some of the better everbearing varieties will produce fruit throughout the fall of the first year. The Klondike and Missionary varieties are best for the Gulf coast region. The Southland, a new home-garden variety, is excellent for other parts of the South. Late summer or early fall is the proper time to set out strawberry plants in the South.

TABLE 1.—*Garden vegetables for a family of five*

IN THE NORTHERN STATES

| Crop | Variety | 50-foot rows | Succession crop | Distance between rows |
|--------------------------------------|-------------------------------|---------------|-------------------|-----------------------|
| | | <i>Number</i> | | <i>Inches</i> |
| Radishes..... | Scarlet Globe..... | 1 | Fall spinach..... | 18 |
| Lettuce..... | New York and Simpson..... | 1 | do..... | |
| Onions..... | Japanese..... | 2 | do..... | |
| Beets..... | Detroit Dark Red..... | 1 | | |
| Carrots..... | Chantenay..... | 2 | | |
| Swiss Chard..... | Lucullus..... | 1 | | |
| Parsnips..... | Hollow Crown..... | 1 | | |
| Salsify..... | Sandwich Island..... | 1 | | |
| | (Alaska.....) | 1 | Late beans..... | |
| | Little Marvel..... | 1 | do..... | |
| Peas..... | Thos. Laxton..... | 1 | do..... | 30 |
| | Telephone..... | 2 | do..... | |
| | Early Bountiful..... | 1 | Late cabbage..... | |
| Snap beans..... | Tendergreen..... | 1 | do..... | |
| | Currie Rust-Proof Wax..... | 1 | do..... | |
| | Stringless Green Pod..... | 1 | do..... | |
| | Henderson Bush..... | 2 | | |
| Lima beans..... | Fordhook Bush..... | 2 | | |
| Early cabbage..... | Jersey Wakefield..... | 2 | | |
| Broccoli..... | Italian Sprouting..... | 1 | | |
| Early potatoes..... | Irish Cobbler or Triumph..... | 8 | Late cabbage..... | 48 |
| Snap beans (2d and 3d planting)..... | (Stringless Green Pod.....) | 2 | | |
| | Early Bountiful..... | 2 | | |
| Tomatoes (early, staked)..... | Pritchard..... | 2 | | |
| Tomatoes (not staked)..... | Marglobe..... | 4 | | |
| Early sweet corn..... | Golden Cross Bantam..... | 5 | Kale..... | |
| Medium sweet corn..... | Country Gentleman..... | 5 | Turnips..... | |
| Late sweet corn..... | Stowell Evergreen..... | 5 | | |
| | (Kentucky Wonder.....) | 1 | | |
| Pole beans..... | (Pole lima.....) | 1 | | |

IN THE OLD COTTON BELT

| | | | | |
|----------------------------|---------------------------------|----|-------------------------------|----|
| Spinach..... | Savoy..... | 5 | Swiss Chard..... | 18 |
| Radishes..... | Scarlet Globe..... | 1 | | |
| | White Icicle..... | 1 | Carrots..... | |
| Lettuce..... | White Boston..... | 1 | | |
| | (Curled Simpson.....) | 1 | Beets..... | |
| Onions (sets)..... | | 2 | | |
| Onions (plants)..... | Valencia..... | 2 | Fall lettuce..... | |
| Beets..... | (Early Eclipse.....) | 1 | | |
| | Detroit Dark Red..... | 1 | Spinach..... | |
| Carrots..... | Chantenay..... | 3 | do..... | |
| Early turnips..... | | 4 | do..... | 36 |
| Mustard..... | Southern Curled..... | 3 | do..... | |
| Early cabbage..... | Charleston Wakefield..... | 3 | Late beans..... | |
| | (Early Bountiful.....) | 2 | do..... | |
| Snap beans..... | Stringless Black Valentine..... | 2 | do..... | |
| | Rustproof..... | 2 | do..... | |
| Lima beans..... | Small bush..... | 3 | | |
| Broccoli..... | Italian Sprouting..... | 2 | | |
| Collards..... | Georgia..... | 4 | | |
| Tomatoes (staked)..... | Marglobe..... | 5 | | |
| Tomatoes (not staked)..... | do..... | 4 | | |
| Early potatoes..... | Irish Cobbler or Triumph..... | 5 | Late turnips (broadcast)..... | 36 |
| Black Eye peas..... | | 4 | | 42 |
| Sweetpotatoes..... | | 17 | | 36 |
| Okra..... | Perkins Mammoth..... | 2 | | 42 |
| Pole beans..... | Kentucky Wonder..... | 2 | | |

From North Carolina northward to the Canadian border the Premier or Howard 17 is one of the most popular strawberry varieties. Two good new varieties, the Fairfax and the Dorsett, are also well adapted to this region. For the northern Great Plains, the Howard 17, Dunlap, and Progressive are among the most popular varieties. The Progressive is an everbearing variety.

Strawberry plants can be set out in the spring in the Northern States and, if given proper care, will yield the second year. They do well in most localities. Some of the better everbearing varieties will produce fruit throughout the fall of the first year. Fifty plants for each member of the family are often recommended as a guide for planting. The strawberry bed should be so located that it can be changed and replanted every 2 years under most conditions.

Grapes bear well in most localities and are relatively easy to care for once the proper methods of pruning and training are learned. They usually reach practically full bearing in the third year after planting. In the Northern States the Concord, Niagara, and Moore's Early are the most popular varieties. In the Southeastern States, the Thomas and Scuppernong varieties are the most popular. About 10 plants set 10 feet apart in the row are plenty for an ordinary family. Grapes require a trellis and careful pruning each year for best results.

Raspberries, blackberries, and dewberries cannot be grown successfully in as large a part of the United States as grapes and strawberries. Dewberries winter kill in the Northern States but are excellent for the South. Raspberries and blackberries do not bear well in the far South. Raspberries, blackberries, and dewberries should bear the second year after planting in those sections of the country where they do well. About 50 to 100 plants of each planted 3 to 4 feet apart in the row should furnish plenty of berries for the ordinary family.

A small asparagus bed should also be found in each family garden and in the North a few hills of rhubarb.

Only a few inexpensive tools are necessary to care for the garden and berries. A good hoe, a garden rake, a spade or spading fork, a pair of pruning shears, and a trowel are all that are essential. Much hard work can be saved if a wheel hoe with a large wheel and a well-built wheel barrow can be bought. Other tools may be useful but are not necessary.

THE SMALL POULTRY FLOCK

Most families who are interested in raising their own vegetables are also interested in producing their own poultry and eggs. Studies in several States indicate that almost all part-time farmers keep a few hens, usually not over 25. A flock of 25 hens can be kept on very little land. They are fed on table scraps and some grain, and thus furnish eggs at low cost for home use. Their manure may be used on the garden land, thus reducing fertilizer cost. A few young chickens can be raised on a different small plot of land each year, in rotation with the garden and truck patch, or on the land planted to young fruit trees. In case the latter plan is used, the young growing trees must be protected.

The necessary permanent buildings and equipment for 25 hens and 40 young chickens would cost about \$50 if built with home labor. Temporary buildings made of second-hand lumber and covered with roofing paper may be built for much less. The yearly expense for purchased grain for this number of chickens would be from \$25 to \$40. If they are well cared for, 25 hens are more than enough to supply the family with eggs throughout the year. In addition, approximately 20 young chickens weighing 3 pounds each and 12 hens weighing 4 to 6 pounds each would be available for meat. This is about 120 pounds of meat of a kind all families like.

There are great differences in the number of eggs produced by the same number of hens under different conditions. Commercial flocks average between 12 and 14 dozen eggs per hen, each year, but the average production in the United States is less than 7 dozen. With good care and housing, the pullets in the flock will lay all winter, but the spring months naturally bring the heaviest laying. It will probably take a few years of experience to get good fall and winter egg production. Eggs are usually lowest in price during the spring and highest in price during the fall and winter. During the heavy laying season in the spring the surplus eggs can be preserved in water glass for use in the winter. On request, the county agricultural agent or the home demonstration agent will furnish, without cost, instructions regarding the use of water glass.

Unless this plan is used the first year or two, it may be necessary to buy eggs in the fall and winter. As in the case of gardening, starting in a small way in egg production is advisable for the beginner. A dozen pullets may be enough for the first year. If the family is successful in getting good egg production from this number, they will have enough fresh eggs for their own use. If good production is not obtained the first year (and this would not be unusual) a larger flock would only mean a larger feed bill.

Losses in the raising of young chickens are likely to be heavy unless the chicks are fed properly and parasites and diseases controlled. To raise only a few chickens the first year will give the needed experience and will keep down the risk of heavy losses.

PRODUCTION OF TREE FRUITS ON SMALL ACREAGES

To grow tree fruits, especially winter apples, may be doubtful economy if the land is high priced and the family has enough cash income to buy these fruits. These trees do not come into bearing for several years; peaches take about 4 years, cherries and plums 4 to 5 years, and apples 6 to 8 years. During this time they must be cared for, sprayed, and pruned if they are to yield well at maturity. A well-rounded program of production for family subsistence, however, should include cherries, plums, peaches, pears, and apples in all localities where such trees bear well.

Bearing fruit trees should be sprayed several times each year, to kill the various insects and to combat the diseases that attack the trees and the fruit. This work is often neglected by those who have only a few trees, as it requires some special equipment, but unless this need is fully realized there is likely to be disappointment later.

A barrel mounted on a 2-wheel cart and fitted with a hand sprayer can be bought or built at a cost of not more than \$30. This equipment can be used to spray the trees on 5 to 10 homesteads having 10 to 15 trees each. If the spraying equipment is owned in partnership the cost would be only \$3 to \$6 for each family.

FERTILIZERS

If the vegetables and other crops are to be cultivated entirely by hand, the intensive use of a small piece of land with heavy fertilization is more feasible and will give better results than the use of a larger area of land in medium or poor condition. Stable or barn-lot manure, when it can be obtained at a reasonable price, is the best garden fertilizer for most soils. A first application of 20 large wagonloads of partly rotted manure on a half-acre garden is not too much, if the land is lacking in organic matter and fertility. However, such manure is usually scarce and expensive near cities. The time to apply the manure will vary, but as a rule it should be spread just before the ground is plowed.

Commercial fertilizers can be used to advantage in many cases along with the manure from the poultry flock. An application at the rate of 600 to 1,200 pounds to the acre, when no manure is available, will usually prove satisfactory. A fertilizer that contains about 5 percent of nitrogen, 10 to 20 percent of phosphoric acid (usually in the form of superphosphate), and 5 or 6 percent of potash is about right for general garden crops. After the ground has been spaded or plowed, the fertilizer should be worked into the ground before the vegetables or other crops are planted.

INSECTS, DISEASES, AND OTHER HANDICAPS

Diseases, insects, rodents, and other pests attack the vegetables as well as the fruits and poultry. These pests, or poor seed, or unfavorable weather may cause a partial or total failure of any one crop or planting. Several plantings help to insure against total loss. A safe plan for the inexperienced is to plant only a small amount of each crop the first year or two. On the basis of the experience thus gained the family can decide which crops are the best for them, considering both what they are successful with and what the family needs.

Even if the first efforts are not successful, the particular crop or variety need not be condemned. Perhaps neighbors have been very successful with it. If so, it probably can be grown successfully if the right methods are used. The county agricultural agent, usually located at the county seat, will be able to give information on all such subjects without cost to the farmers. State agricultural experiment stations will send free bulletins about vegetable growing, insects and diseases, poultry raising, and other agricultural problems, on request. A list of free bulletins published by the Government, which are likely to be of interest to subsistence-homesteaders will be found on page 19.

CASH EXPENSES FOR AGRICULTURAL PRODUCTION AND RETURNS

Cash operating expenses in connection with such a program as outlined in the suggested 1-acre plan would be about as follows:

| | |
|--|----------------|
| 1 man and team—plowing and preparing the seed bed in the spring (5 hours)----- | \$2. 50 to \$4 |
| Seeds, plants, and bushes (after first year)----- | 3. 00 to 5 |
| Fertilizer (300 to 600 pounds)----- | 4. 50 to 9 |
| Insecticides----- | 3. 00 to 6 |
| Feed for chickens (1,600 to 2,000 pounds of grain)----- | 25. 00 to 40 |
| Total----- | 38. 00 to 64 |

The careful manager can sometimes reduce these cash outlays by exchanging tools with neighbors, by trading work, or by promising to trade products at the end of the season for items obtained earlier.

In return for the family's investment in the land, and its labor and cash expenses for the season, as indicated above, the family will get most of its supply of vegetables for the year, its entire supply of eggs and poultry for the year, and most of its fruit. The value of these vegetables and fruits has been variously estimated at from \$70 to \$150. If the 25 hens average 8 dozen eggs apiece, valued at 20 cents a dozen, the total value of the eggs produced would be \$40; and 120 pounds of poultry meat at 25 cents a pound would be \$30. This means that the total value of food from the 1-acre tract would be from \$140 to \$220.

It might be pointed out that an adequate diet at moderate cost for a very active family of five, as worked out by the United States Bureau of Home Economics, calls for only 85 dozen eggs. This indicates that about 100 dozen eggs would be available for sale if 25 hens are kept, but it would be at the season when egg prices are low, unless unusually progressive poultry practices are used.

WINTER VEGETABLE AND FRUIT SUPPLY FOR A FAMILY OF FIVE

The gardens and fruit trees suggested in the planting diagrams should provide ample supplies for use during the growing season, and also a generous quantity for winter needs. In the North fresh foods will be available for about 4 or 5 months. The southern gardens will produce during a longer period, although in some sections little can be grown during the hot, dry, midsummer months. Early in the year the family should make an estimate of the quantities of the various foods to be stored, canned, and otherwise preserved for use during the nonproductive months. The best method to use will depend upon the crops raised, the climate, and other local conditions.

Storing in cellars or pits is practicable for such relatively non-perishable crops as potatoes, carrots, beets, turnips, parsnips, onions, cabbage, apples, and pears. Sweetpotatoes, after a first curing, must be kept in a dry, warm, well-ventilated place; squash and pumpkin should also be stored in a dry, warm place.

Drying may be used to keep beans, peas, okra, corn, squash, and some fruits; 1 to 2 bushels of dried beans and peas and 15 to 30 pounds of dried fruit is a generous winter supply for a family of five.

Canning, in either glass jars or tin cans, is the best method of preservation for some foods. If proper equipment for canning

cannot be bought by single families it may be possible to establish a community canning center where the equipment can be used co-operatively. The Department of Agriculture at Washington, D.C. will send a mimeographed leaflet on community canning centers, on request. A pressure cooker should be used for canning such vegetables as leafy greens, asparagus, beans, peas, okra, corn, or root vegetables. Unless a pressure cooker is available it is advisable to limit the canning to fruits, rhubarb, and acid vegetables, such as tomatoes, tomato combinations, sauerkraut, and beets in vinegar.

The two canning budgets that follow are suggested as general guides for families living in the North and South, respectively. More detailed canning plans based on the conditions peculiar to the individual States can be obtained from the extension services of the various State agricultural colleges or from the local home demonstration agent. The quantities suggested in the following budgets will provide 2 or 3 one-half-cup servings of canned fruits or vegetables for each member of the family for each day of the months when the garden is not producing. Used in connection with the stored and dried products, this amount of canned foods should be enough to meet the usual needs of a family of five. But it might be well to allow an additional 10 to 15 percent to care for guests, spoilage, or emergencies such as poor crops during the following season. As most properly canned food will keep well for at least 2 years, any that is unused may be carried over to use during the second year. It is best not to hold canned foods for longer than 2 years.

During the first few years a new homestead plot may not furnish enough fruit to supply the quantities suggested in the canning budgets. In some sections there may be wild fruits and berries to use. If enough fruit cannot be obtained, the quantities of the various canned vegetables should be increased somewhat.

Fruit and vegetable canning budget for family of five in the Northern States

[For use during 7 nonproductive months]

| | | |
|---|----------|------------|
| Tomatoes | quarts.. | 100 to 150 |
| Leafy greens (spinach, chard, etc.) | do..... | 20 to 35 |
| Other green vegetables (asparagus, string or lima beans, peas, okra, etc.) | quarts.. | 20 to 35 |
| Sauerkraut | do..... | 15 to 20 |
| Sweet corn | do..... | 15 to 20 |
| Soup mixtures | do..... | 10 to 20 |
| Fruits (peaches, pears, quinces, plums, grapes, cherries, berries, apples, apple sauce, etc.) | quarts.. | 90 to 130 |
| Fruit juices | do..... | 15 to 25 |
| Catsup, pickles, chow-chow, etc. | pints... | 15 to 25 |
| Jellies, jams, fruit butters, etc. | do..... | 15 to 25 |

Fruit and vegetable canning budget for family of five in the Southern States

[For use during 6 nonproductive months]

| | | |
|--|----------|-----------|
| Tomatoes (if citrus fruits are available the quantity of canned tomatoes may be reduced) | quarts.. | 75 to 125 |
| Leafy greens (fresh greens are available for 12 months in many southern localities). | | |
| Other green vegetables (asparagus, string or lima beans, peas, okra, etc.) | quarts.. | 20 to 40 |
| Sweet corn | do..... | 15 to 25 |
| Soup mixtures | do..... | 15 to 25 |

| | | |
|--|----------|-----------|
| Sauerkraut----- | quarts-- | 10 to 15 |
| Carrots and other vegetables----- | do----- | 10 to 15 |
| Fruits (peaches, pears, plums, figs, grapes, berries, cherries, etc.)----- | quarts-- | 75 to 110 |
| Fruit juices----- | do----- | 15 to 25 |
| Catsup, pickles, chow-chow, etc.----- | pints-- | 15 to 25 |
| Jellies, jams, fruit butters, etc----- | do----- | 15 to 25 |

FEED AND LIVESTOCK PRODUCTION ON A SUBSISTENCE HOMESTEAD

If horse or mechanical power is available at a reasonable cost the farm plans can be materially changed to advantage. The garden and truck patch may be laid out in long rows, 3 feet apart, and can be cultivated with power throughout the growing season. This will greatly reduce the hand labor and will permit the use of a larger acreage.

Figure 3 shows a suggested plan for fruit and vegetable production where power is available. Approximately 2 acres of land are included in this plan. Unless some arrangement can be made to secure power cultivation at reasonable cost this plan will not be feasible. To keep a horse or garden tractor for use on such a small piece of cultivated land is questionable economy. A half-acre orchard may not be considered desirable since fruit cannot be gathered for several years. In that case the ground might be used to grow corn or other feed crops for the poultry.

If an orchard is planted as indicated, during the first few years while the trees are young, many of the garden vegetables can be raised in the space between the trees. This would leave some of the other land for growing feed for the poultry.

The one fourth acre sown to legumes in figure 3, if planted to the appropriate crops, may be used in growing the young chickens.

THE FAMILY COW

Studies indicate that a family of five should have from 1,200 to 1,500 quarts of milk and 90 to 150 pounds of butter a year. One good cow can supply these needs most of the time. From the standpoint of an adequate diet for children in families that have very low incomes, keeping a cow would seem to be more valuable than raising vegetables or fruits. But the keeping of a cow by inexperienced people, on a small piece of land has many disadvantages which may make it questionable.

A high-producing dairy cow is a sensitive animal, responding to good care, but quick to give less milk on receiving poor or improper care. Milking, feeding, and watering require regular attention twice each day. But if a family is willing to undertake the regular care of a cow and has a natural knack for taking care of animals it should have no serious difficulties in obtaining a reasonably satisfactory quantity of milk.

Although one good cow, well cared for, will give over 7,000 pounds of milk (the quantity necessary to supply the milk and butter for the family of five), the average production in the United States is only about 4,500 pounds per cow. As the usual lactation period for a cow is 10 or 11 months, at best, milk and butter would have to be bought during part of the year. It is reasonable to estimate that, with ordi-



FIGURE 3.—A SUGGESTED PLAN FOR A 2-ACRE SUBSISTENCE HOMESTEAD.

Cultivation with horse or tractor power requires wider rows and a larger garden. It also makes it possible to care for a larger acreage. Alternate uses of the space allotted for an orchard and for the rotation of crops are: as pasture for a cow, pasture for milk goats, or pasture for pigs, or for the growing of feed grains for poultry.

nary care, a cow will furnish both the milk and butter for a family of five for 4 months of the year. For another 6 or 7 months there will be plenty of milk, but the butter will have to be bought. Both milk and butter would have to be bought for the remaining 1 or 2 months. If a cow is kept, it may be more economical to sell the extra milk to neighbors and buy butter, rather than try to make butter. The money from sales of milk at retail prices during the first part of the lactation period would not only buy the butter during this period but would largely pay for the necessary purchases of milk during the period when the cow is dry. The question of whether or not to keep a cow may turn on the possibility of selling the extra milk to neighbors at retail prices.

In the Northeastern and Midwestern States, 1 to 2 acres are necessary to pasture a cow. If the land on a 2-acre tract is very productive and no orchard is wanted, enough pasture and green crops could be grown to feed a cow during the summer. A better balanced plan of farm production for family subsistence purposes, however, would be attained by adding 2 acres of pasture to the 2-acre plot suggested above. Figure 4 shows how this might be done, with the pasture arranged so that the cow will come up close to the house for watering, feeding, and milking.

Good summer pasture, supplemented by roughage from the garden, will reduce to a minimum the grain to be fed to the dairy cow during summer months. During the winter in the Northern States a cow will need about $2\frac{1}{2}$ tons of hay, costing from \$20 to \$38, and from 1,000 to 2,000 pounds of grain, costing from \$10 to \$30. A shed, built in connection with the poultry house or some other outbuilding, large enough to keep a cow and some feed would cost from \$50 to \$150. In the South the milder climate makes a warm building unnecessary, but some form of shelter should be provided even there.

MILK GOATS

If for any reason a cow will not be kept, milk goats might be considered in those communities where breeding stock is available. In the southwestern and western parts of the United States in particular, a number of the families on small acreages keep a milk goat or two to supply milk for the family. An ordinary milk goat gives from $1\frac{1}{2}$ to 2 quarts of milk a day and needs only about one sixth as much feed as a cow. Three to five does would be necessary to furnish an ample supply of milk throughout the year for a family of five.

There are a number of things to be learned before buying a milk goat. Farmers' Bulletin 920 on milk goats gives some valuable general information and will be sent free by the United States Department of Agriculture on request. In general, people in this country do not know much about milk goats, but in some communities there may be neighbors who have had experience in keeping goats who can give advice and information.

PORK FOR FAMILY USE

A family of five requires from 400 to 600 pounds of meats and cooking fat a year. This quantity can be produced in the form of pork and lard by growing and fattening three pigs. But most

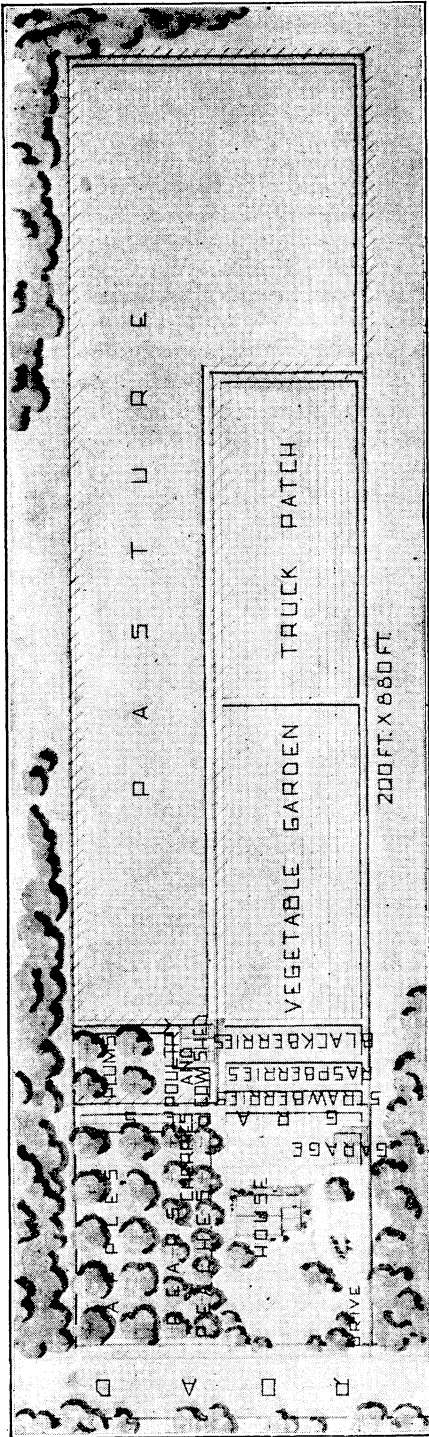


FIGURE 4.--A SUGGESTED PLAN FOR A 4-ACRE SUBSISTENCE HOMESTEAD

The addition of 2 acres of pasture to the plan suggested in figure 3 will provide ample pasture for a cow in those sections of the United States where grass grows well.

families will not wish to depend on hogs alone for their meat, even though they also have eggs and poultry from their own flock.

In some States and communities there are regulations that prohibit the raising of pigs close to neighbors. In any case, pigs should be kept some distance from any house, even though water and feed must be carried to them.

Two or three pigs can be kept in a small pen and fed table scraps and some grain. Thus they grow into 500 to 700 pounds of live pork at a relatively low cost if the grain can be raised or bought economically. Pigs can be bought as weanlings in most communities for from \$3 to \$5 each. Pigs immunized against cholera should be bought, particularly if table scraps are to be fed. A pig will eat from 600 to 1,000 pounds of grain costing \$6 to \$15, while growing to a weight of 200 pounds. Savings of 10 to 20 percent on feed costs may be expected if one fourth to one half of an acre of good pasture can be provided. Shade is very important for pigs in the summer. Plenty of fresh water is also essential. A comparison of the cost of small pigs plus the cost of grain for feed on the one hand and the price of dressed pork on the other, should be made. This, and the effort and risk involved, should be consid-

ered carefully before a decision is made. Studies of part-time farmers show that only one fourth to one third of these men (mostly on the larger acreages) keep cows and even fewer keep pigs. Evidently most of them find it more economical or easier to buy their milk and meat.

Manure from the animals is valuable for the garden and reduces the cash expenses for fertilizer. Much of the cow manure would be used on the pasture; but even so, fertilizer requirements for the cultivated land should be reduced by 50 to 70 percent when 25 hens, a cow, and pigs are kept.

FEED FOR LIVESTOCK ON SMALL ACREAGES

Many people who want to raise as much of the family's food supply as possible with the lowest cash cost, plan to keep poultry, a cow or two, and pigs, and to raise the necessary feeds. It takes about $1\frac{1}{2}$ acres of land to raise the necessary corn and wheat for 25 hens and 40 young chickens. In addition to 2 acres of pasture for a cow, approximately $1\frac{1}{4}$ acres are necessary to raise the hay and $1\frac{1}{4}$ acres to raise the grain consumed by the cow during the year. This makes a total of 5 acres for one cow; if two cows are kept this acreage should be doubled. One and one half acres should produce enough grain to fatten three pigs.

Using 6 acres of land for raising feed in addition to 1 acre of garden and truck crops would require the work of a man and team 15 to 25 days during the growing and harvesting season. If a one-horse outfit were used, 30 to 50 days would be required. This is too small an amount of work for one horse if the overhead cost is to be kept low. On the other hand, to hire a man and team 15 to 25 days at the usual rates means a considerable cash expense.

A horse requires about the same quantity of feed and pasture as a cow. If a horse is to be kept, 5 more acres should be obtained. It might be possible for two or more families to own a horse or team in partnership and thus reduce the cost.

Therefore, if a family plans to do the work by hand an intensive use of a relatively small piece of land will probably be more satisfactory than spreading the effort over a larger area. Unless a cow or pigs are kept, 1 acre of good land is enough under such circumstances. If a cow is kept and it is planned to buy the winter roughage and grain, 2 additional acres of good pasture land would be enough. A man employed elsewhere, working only a few hours a day on his place during the growing season, with the help of his family can care for the vegetable garden, small fruits, a few fruit trees, and a cow without any difficulty.

If mechanical power or horsepower is available at low cost, the vegetables can be grown in wider rows and cultivated with a horse or garden tractor. This makes it possible to put to good use a larger acreage. But it is difficult to have horse cultivation at low cost on a very small acreage. Large families with small incomes, who have considerable free time during the growing season may find it economical to keep a horse, 1 or 2 cows, and some pigs, and raise the farm-grown feeds for the livestock in addition to the vegetables and fruits. At least 15 acres of good land should be acquired in such

cases. A careful study should be made of all sides of the question before a family decides to undertake so much farm work for family living purposes. Growing feeds on the farm in such small quantities and the cost of keeping a horse when it is used only a small part of the time mean relatively high costs and low net returns, as compared with the returns from industrial employment, if that is available.

POSSIBILITIES OF A SMALL WOOD LOT

The yearly fuel bill is always difficult for families with small incomes. More fuel is used in country homes where there is no gas or electricity for cooking. If land can be obtained which includes a few wooded acres, the family's wood supply can be provided with almost no additional cash cost. Cutting can be done in the winter or whenever there is extra time, and if the trees to be cut are carefully selected, the supply of timber will continue throughout the owner's lifetime. Perhaps some exchange of work could be arranged with an owner of a team, in order to have the wood hauled to the house.

If the farmer does not buy any timberland but there is considerable timber in the community, he may be able to get the privilege of cutting his fuel supply from a neighbor's woods for a very small sum.

LIMITATIONS OF SMALL ACREAGES AS A MEANS OF SELF-SUPPORT

Letters coming from townspeople show that more often they hear about the best results from farming than about the poorest results; it has therefore seemed best to caution the reader frequently not to regard subsistence farming too optimistically. No real service is rendered in holding out rosy possibilities when the probabilities are slight that such results will be realized by most people. On the other hand it is not intended to discourage those townspeople who are handicapped by lack of capital and are getting only a small income, if they have an honest wish to better their conditions by raising most of their food supply even though it means some trouble and much work.

The work may be hard and the results not always up to expectations; but if the family has no better possibility almost any arrangement to obtain the use of a piece of land should be better than continued idleness or full support from charity or relief funds.

It cannot be overemphasized, however, that a program of farm production as here outlined, even though all the livestock feed is raised, does not make the family self-maintaining. Cash farm expenses must be met, such as the purchase of seeds and feeds that cannot be raised economically, taxes, and repairs of equipment. Family living expenses for clothes, school supplies, and medical care mean cash expenditures. Part-time farming studies do not throw much light on the minimum cash income necessary to meet these expenses. The average cash income reported for those groups of part-time farmers whose financial relations were studied varied from \$400 to \$900 in most cases.

A number of people, after gaining farm experience, will find that they can raise some products for sale at a profit. A commercial poultry business large enough to employ a man full time and bring in an adequate income can be developed on as little as 2 acres if conditions are right.

PRODUCTION FOR HOME USE ON LARGER ACREAGES

Many people in towns who have little hope of further employment, because of age or for other reasons, would like to get a larger acreage of cheap land on which they can become independent for the rest of their lives. They are chiefly interested in producing for home use; they are interested in producing for sale only enough to furnish the few necessities of life not obtained on the farm. Usually their capital and experience are so limited that cheapness of land is their chief concern. They are naturally attracted by advertisements describing farms that can be bought for a fraction of the cost of the improvements on them.

As a matter of fact, a great deal of farm land in the United States is not productive enough to be of value in growing market crops and livestock. This is especially true in the southern Appalachian region, the Ozarks, the New England States, and the cut-over areas of the Southern and Great Lake States. Many farms in these areas have very low producing possibilities, and the families on them grow crops and livestock almost entirely for their own use.

SELF-SUFFICING FARMS

The 1930 agricultural census, in its study of types of farming, classified all farms as self-sufficing where 50 percent or more of the value of the farm products was consumed by the family. This group of farms, 498,019 in 1929, compares with the type of farming many townspeople propose to engage in. These self-sufficing farms are most common in the southern Appalachian region. Figures from a study of 151,000 of these self-sufficing farms in this region show how meager a living those people really had.

Most of the farms were from 20 to 100 acres in size. The average value was \$2,029. The value of tools and machinery per farm was only \$74. Not all of the farms had horses; only a little over one half of them kept milk cows; and about one half of them kept hogs. The total value of the farm products sold, traded, or used by the operator's family, in 1929, was \$464, of which \$323 was used by the operator's family.

INDIVIDUAL FARMS VARY IN PRODUCTIVITY

Studies indicate that the opportunities or likelihood of making a living on some of the farms in these poorer areas is very limited. A full set of buildings is no indication of a productive farm. Many abandoned farms, several hundred acres in size, have failed to yield a reasonable living under any type of farming. Many families living in these areas have another source of income, such as cutting wood for sale, road work, or coal mining, which supplements their living obtained from the farm.

Natural productivity of the soil varies greatly. To the inexperienced, good and poor soils in these regions look alike. The county agricultural agent located at the county seat will be able to appraise the relative productivity of the various farms in his county. Neighbors who have lived in the community for years should be consulted. Inquiry as to how they are farming and the results they are obtaining on their own farms, as well as the results to be expected on nearby farms for sale, may bring valuable information.

Social considerations should form an important part in making a decision. Good schools and churches and desirable associates for the growing children are always considered by responsible parents when buying a home whether in town or country. In general, the communities on poor land are not likely to be able to have good schools and churches. If there are no growing children in the family less consideration need be given this question, and if money is extremely limited it may be impossible to do much about it. But these social problems should not be overlooked.

Buying a farm entirely by correspondence is especially full of dangers. A thorough investigation before buying in unfamiliar areas will prevent many mistakes. Renting for a time before buying gives a family a chance to learn the advantages and disadvantages of any particular farm.

FARMERS' BULLETINS OF INTEREST

The following Farmers' Bulletins published by the United States Department of Agriculture deal with many of the problems encountered in agricultural production for family subsistence purposes. They are available for distribution on request.

- F.B. 1673. The Farm Garden.
- F.B. 1371. Diseases and Insects of Garden Vegetables.
- F.B. 1508. Poultry Keeping in Back Yards.
- F.B. 1652. Diseases and Parasites of Poultry.
- F.B. 1610. Dairy Farming for Beginners.
- F.B. 920. Milk Goats.
- F.B. 879. Home Storage of Vegetables.
- F.B. 1088. Selecting a Farm.
- F.B. 1746. Subsistence Farm Gardens.
- F.B. 1753. Livestock on Small Farms.
- F.B. 1762. Home Canning of Fruits, Vegetables, and Meats.
- F.B. 1800. Home-made Jellies, Jams, and Preserves.

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